
Greenville County Technical Specification for:
EC-02: BENCH TERRACING

1.0 Bench Terracing

1.1 Description

Bench terraces are permanent earth embankments or ridges constructed along the face of a slope at regular intervals creating a stair step effect. Bench terraces reduce slope lengths and direct surface to stable outlets.

1.2 Design

Bench terraces are designed for highly erodible, steep slopes ranging from 3:1 to 1.5:1, and should not be constructed on slopes with sandy or rocky soils. They are effective only where there are suitable runoff outlets such as grassed waterways, level spreaders or piped outlets. The design of a bench terrace system involves proper spacing and location. Terrace spacing is expressed as the vertical distance between the channels of successive terraces. For each terrace, the spacing is the vertical distance from the top of the hill to the bottom of the channel, commonly known as the vertical interval or VI. Although the horizontal spacing is useful in determining row arrangement, the VI is more convenient for terrace layout and construction. Terrace spacing is expressed by the empirical formula

$$VI = aS + b$$

Where :

VI = vertical interval between consecutive terraces in ft.,
a = constant for geographical location (0.5 for Greenville County),
b = constant for soil erodibility
1.0 (low infiltration rates and little ground cover),
2.5 (average rates infiltration and medium ground cover), and
4.0 (high rates infiltration and good ground cover).
S = average land slope in percent.

The horizontal interval HI or bench width can be calculated by the formula

$$HI = VI \times 100/S$$

Where :

HI = horizontal interval of each terrace in ft.,
VI = vertical interval between consecutive terraces in ft., and
S = average land slope in percent.

1.3 Inspection and Maintenance

Maintenance should be performed as needed.

Terraces should be inspected every seven days and inspections are recommended within 24-hours after each rainfall event that produces ½-inches or more of precipitation until final stabilization is achieved.